

PhotonEdge

Precision Optical Components

Sapphire Optical Window

Product Datasheet | Sapphire Material | Standard Grade

July 2026 | V1.0

1. Product Overview

PhotonEdge Sapphire Optical Windows are manufactured from high-quality Sapphire material. Sapphire optical windows combine extreme hardness (Mohs 9), chemical inertness, and wide transmission from UV to mid-IR. Suitable for harsh environments, high-pressure vessels, and applications requiring scratch resistance.

All windows are precision-polished to $\lambda/10$ surface flatness with parallelism better than 3 arcmin. Available uncoated or with anti-reflection coatings optimized for specific wavelengths.

PhotonEdge Optical Windows offer excellent surface quality and tight tolerance control at competitive prices. Standard models deliver in 1-2 weeks.

2. Technical Specifications

Parameter	Specification
Material	Sapphire
Transmission Range	180nm - 4.5um
Diameter Tolerance	+0.0 / -0.1mm
Thickness Tolerance	+/-0.1mm
Surface Flatness	$\lambda/10$ @ 632.8nm
Surface Quality	40-20 Scratch-Dig
Parallelism	< 3 arcmin
Clear Aperture	> 90% of diameter
Coating	AR Coating, R < 0.5% per surface
Operating Temperature	-20 degC to +60 degC

3. Standard Models

Custom Options: Rectangular windows, custom thickness, and wedge windows are available.

Standard models are in stock with typical delivery of 1-2 weeks. Custom sizes and coatings can be manufactured in 3 weeks.

4. Material Properties

Sapphire Key Properties:

- Transmission Range: 180nm - 4.5um
- Refractive Index: 1.7682 (ordinary)
- Density: 3.97 g/cm³
- Thermal Expansion Coefficient: $5.3 \times 10^{-6}/K$ (a-axis)

5.

Various AR coatings are available. Uncoated windows are also available.

Coating Type	Wavelength	Reflectance	Applications
Standard	400-700nm	R < 0.5% per surface	Visible light systems
Optional	650-1000nm	R < 0.5% per surface	Near-infrared
Optional	400-1000nm	R < 1.0% per surface	Multi-wavelength
Optional	250-400nm	R < 1.5% per surface	UV systems

6. Ordering Information

Sample Policy: First-time customers can order single-piece samples at regular price.

When ordering or requesting a quote, please provide:

1. Model number or diameter and thickness requirements
2. Coating specification
3. Quantity and delivery requirements
4. Special requirements (wedge angle, custom shape, etc.)

Minimum Order Quantity: 1 piece for standard models.

Lead Time: 1-2 weeks for stock. 3 weeks for custom.

7. Contact Information

Beijing Hengdingguang Technology Co., Ltd.

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Email: sales@photonedgeoptics.com

Address: Beijing, China

Manufacturing: 15+ years experience | 67+ product types | 500+ global clients

Quality Assurance: 100% inspection | $\lambda/10$ surface flatness | Zero-defect shipping